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Driving larger NIF implosions with smaller CCR designs[1] ALEX ZYLSTRA, ANDREA KRITCHER, RICCARDO TOMMASINI, DANIEL CASEY, SEBASTIEN LE PAPE, KEVIN BAKER, CHRIS WEBER, MICHAEL STADERMANN, ABBAS NIKROO, DAVID STROZZI, DENISE HINKEL, BEN BACHMANN, MATTHIAS HOHENBERGER, DEBBIE CALLAHAN, OMAR HURRICANE, Lawrence Livermore Natl Lab, NEAL RICE, CASEY KONG, General Atomics — The expected fusion performance of an ICF implosion is strongly dependent on the capsule scale, roughly as the 4^{th} power. The program at NIF is pursuing several avenues towards driving larger capsules within the constraints of the existing laser system. We present new results for a design with a case-to-capsule ratio (CCR) of ˜2.7, significantly smaller than other modern low-gas-fill hohlraum designs which have operated at CCR >3. Small CCR increases the coupling efficiency to the capsule, at a cost of more challenging Legendre mode 2 symmetry, which we compensate using wavelength tuning to empirically adjust the cross-beam energy transfer between the inner and outer beams. Results from shock timing, in-flight and stagnation symmetry of gas-filled implosions, and DT layered experiments will be presented.

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